

Appl. No. 09/404,729
Reply to Office action of July 19, 2005

Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1 Claim 1 (currently amended): A distributed market based control assembly for
2 applying a force to a structure comprising:
3 multiple actuators, each of the multiple actuators having an actuator controller that
4 is responsive to an electrical signal representative of price information to
5 control an applied force produced by the actuator on the structure; and
6 an electrical conductor for transmitting voltage and accumulating charge, referred
7 to as a marketwire; the price information being represented on the marketwire
8 by analog fluctuations in an electrical characteristic of the marketwire; the price
9 information being dependent on the applied force produced by each actuator
10 on the structure; the marketwire being connected to each actuator controller to
11 convey the price information to the actuator controllers without requiring any
12 one of the actuators to communicate directly with any other one of the
13 actuators. ~~by analog fluctuations in an electrical characteristic of the~~
14 ~~marketwire.~~

1 Claim 2: (previously presented) The distributed market based control assembly
2 for a structure of claim 1, wherein the analog fluctuations in the electrical
3 characteristic of the marketwire are voltage changes.

1 Claim 3: (previously presented) The distributed market based control assembly
2 for a structure of claim 1, wherein the analog fluctuations in the electrical
3 characteristic of the marketwire are current changes.

1 Claim 4 (currently amended): A distributed market based control assembly for a
2 mobile structure comprising:
3 multiple actuators, each of the multiple actuators having an actuator controller that
4 is responsive to an electrical signal representative of price information to
5 control an applied force produced by the actuator to collectively promote
6 movement of a structure from a first position to a second position,
7 a sensor for measuring the movement of the structure from the first position to the
8 second position, the sensor producing an input measurement; and
9 an electrical conductor for transmitting voltage and accumulating charge, referred
10 to as a marketwire; the marketwire being connected to each actuator controller
11 and to the sensor; the price information being represented on the marketwire
12 by analog fluctuations in an electrical characteristic of the marketwire; the price
13 information being dependent on the applied force produced by each actuator
14 on the structure and on the input measurement produced by the sensor; the
15 marketwire to convey conveying the price information to the actuator
16 controllers and the sensor, by analog fluctuations in an electrical characteristic
17 of the marketwire.

1 Claim 5: (previously presented) The distributed market based control assembly
2 for a mobile structure of claim 4, wherein the analog fluctuations in the electrical
3 characteristic of the marketwire are voltage changes.

1 Claim 6: (previously presented) The distributed market based control assembly
2 for a mobile structure of claim 4, wherein the analog fluctuations in the electrical
3 characteristic of the marketwire are current changes.

1 Claim 7 (currently amended): A distributed market based control assembly for
2 damping structure movement comprising:
3 multiple actuators, each of the multiple actuators having an actuator controller that
4 is responsive to an electrical signal representative of price information to
5 control an applied force produced by the actuator to collectively counter
6 movement of a structure from a first position to a second position,
7 a sensor for measuring movement of the structure from the first position to the
8 second position, the sensor producing an input measurement; and
9 an electrical conductor for transmitting voltage and accumulating charge, referred
10 to as a marketwire; the marketwire being connected to each actuator controller
11 and to the sensor; the price information being represented on the marketwire
12 by analog fluctuations in an electrical characteristic of the marketwire; the price
13 information being dependent on the applied force produced by each actuator
14 on the structure to counter the movement of the structure and on the input
15 measurement produced by the sensor; the marketwire to convey conveying the
16 price information to the actuator controllers and the sensor without requiring
17 any one of the actuators to communicate directly with the sensor, by analog
18 fluctuations in an electrical characteristic of the marketwire.

1 Claim 8: (previously presented) The distributed market based control assembly
2 for damping structure movement of claim 7, wherein the analog fluctuations in the
3 electrical characteristic of the marketwire are voltage changes.

1 Claim 9: (previously presented) The distributed market based control assembly
2 for damping structure movement of claim 7, wherein the analog fluctuations in the
3 electrical characteristic of the marketwire are current changes.

Claim 10: (canceled).

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1 Claim 11: (previously presented) The distributed market based control assembly
2 for a mobile structure of claim 4, wherein the multiple actuators are air jets, and
3 the structure is a sheet of paper; the actuator controllers being responsive to price
4 information to control the applied forces of the air jets to collectively promote
5 movement of the sheet of paper from a first position to the second position in a
6 paper path.

1 Claim 12: (previously presented) The distributed market based control assembly
2 for a mobile structure of claim 4, wherein the mobile structure is a robotic arm
3 formed by struts interconnected by rotational elements; wherein the actuator
4 controllers responsive to price information control the applied forces of the multiple
5 actuators to collectively promote movement of at least one of the struts from a first
6 position to a second position.

1 Claim 13 (previously presented): A market based control system for controlling
2 movement of a structure comprising:
3 multiple producing units for applying forces to the structure to effect the
4 movement;
5 multiple consuming units for sensing the movement of the structure; and
6 an electrical conductor connecting the multiple producing units to the multiple
7 consuming units; operation of each of the multiple producing units and the
8 multiple consuming units causing an analog fluctuation in an electrical
9 characteristic of the conductor; the electrical conductor transmitting and
10 receiving market price information encoded as measurable analog fluctuations
11 in the electrical characteristic of the conductor; operation of the producing units
12 to effect movement of the structure being determined in response to the market
13 price information.

1 Claim 14: (new) The distributed market based control assembly of claim 1 for
2 applying a force to a structure, wherein the price information is a continuously
3 provided electrical signal; the marketwire immediately transmitting changes in
4 price information to the actuators.

1 Claim 15: (new) The distributed market based control assembly for a mobile
2 structure of claim 4 further including multiple sensors, wherein each actuator
3 controller is connected to a sensor by the marketwire;
4 wherein the analog fluctuation in the electrical characteristic of the marketwire
5 caused by the input measurement produced by each sensor provides a
6 demand level for applied forces to be produced by the actuators on the
7 structure; the demand level being a component of the price information on the
8 marketwire;
9 wherein the analog fluctuation in the electrical characteristic of the marketwire
10 caused by the applied forces produced by the actuators on the structure
11 provides a supply level for input measurements produced by the sensors; the
12 supply level being a component of the price information on the marketwire; and
13 wherein operation of the actuators and the sensors is a function of the demand
14 and supply levels seeking equilibrium.